

- 1        1. A method for processing a data signal comprising:
  - 2            accepting a protocol specification that includes
  - 3            specification of a plurality of elements, each
  - 4            specification including a length and a name, wherein the
  - 5            specifications of at least some of the elements are in
  - 6            terms of sequences of other of the plurality of elements,
  - 7            and the specification of at least some of the elements
  - 8            includes a specification of an action;
- 9            accepting a series of data packets formed from the
- 10          data signal;
  - 11            for each accepted packet, associating portions of
  - 12            the input packet with elements specified in the protocol
  - 13            specification; and
- 14            for each of the associated portions of the input
- 15          packet, performing actions included in the specification of
- 16          elements associated with that portion of the input packet.

  

- 1        2. The method of claim 1 wherein the specification of
- 2        an action includes a specification of a programming
- 3        language statement, and wherein performing actions included
- 4        in the specification of elements includes executing the
- 5        programming language statement.

1       3. The method of claim 2 further comprising processing  
2 the protocol specification to produce executable software,  
3 and wherein execution of the software implements the  
4 functions of associating portions of input packets with  
5 elements specified in the protocol specification and  
6 performing actions associated with elements specified in  
7 the protocol specification.

1       4. The method of claim 2 wherein the protocol  
2 specification includes an object-oriented specification of  
3 elements, wherein names of components of an element are  
4 local to that element.

1       5. The method of claim 2 wherein the protocol  
2 specification includes an association of numerical values  
3 and symbolic names for an element.

1       6. The method of claim 1 further comprising processing  
2 the protocol specification to produce a hardware  
3 description, and wherein performing actions included in the  
4 specification of elements includes sending a message  
5 identifying a specified action.